Claims

1. A soil producing method for producing second soil containing organic halides with a second concentration lower than a first concentration from first soil containing the organic halides with the first concentration, comprising the steps of:

introducing the first soil to a hermetic zone; and

thermally decomposing at least a part of the organic halides by heating the first soil under reduced pressure.

2. The soil producing method as set forth in claim 1,

wherein the organic halides are dioxins.

3. The soil producing method as set forth in claim 1, comprising the step of:

reducing the concentration of halogen contained in gases produced by the thermal decomposition of the soil.

4. The soil producing method as set forth in claim 1,

wherein a thermally decomposed residue of the first soil is cooled after the hermetic zone is purged by a purge gas which is substantially organic halide-free and not capable of generating organic halides.

5. The soil producing method as set forth in claim 4,

wherein the purge gas contains at least one elememt selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen.

6. The soil producing method as set forth in claim 1,

wherein the thermally decomposing step is performed in the hermetic zone where an oxygen concentration is controlled.

7. A soil producing method for producing second soil containing organic halides with a second concentration lower than a first concentration from first soil containing the organic halides with the first concentration, comprising the steps of:

heating the first soil so that at least a part of the organic halides are evaporated or decomposed;

introducing a heated residue of the soil to a hermetic zone; and

cooling the heated residue of the first soil after the hermetic zone is purged by a purge gas which is substantially organic halide-free and not capable of generating organic halides.

8. The soil producing method as set forth in claim 7,

wherein the organic halides are dioxins.

9. The soil producing method as set forth in claim 7,

wherein the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen.

10. The soil producing method as set forth in claim 7, further comprising the step of:

reducing a concentration of halogen contained in gases produced by heating the first soil.

11. A soil producing method,

wherein the soil containing organic halides is thermally decomposed under reduced pressure.

12. The soil producing method as set forth in claim 11,

wherein the concentration of halogen contained in gases produced by the thermal decomposition of soil is reduced.

13. A soil treatment apparatus for treating soil containing organic halides or being capable of generating organic halides by heating, comprising:

means for heating the soil;

a hermetic zone;

means for introducing a heated residue of the soil from the means for heating the soil to the hermetic zone;

means for purging the hermetic zone by a purge gas which is substantially organic halide-free (which is short of organic halides); and

means for cooling the heated residue.

14. The soil treatment apparatus as set forth in claim 13,

wherein the heating means is a combustion furnace for performing combustion treatment for the soil.

15. The soil treatment apparatus as set forth in claim 13,

wherein the heating means is a thermal decomposition furnace for performing thermal decomposition treatment for the soil.

16. The soil treatment apparatus as set forth in claim 13,

wherein the heating means is a reduced pressure thermal decomposition furnace for performing thermal decomposition treatment for the soil under reduced pressure.

17. The soil treatment apparatus as set forth in claim 13,

wherein the purging means introduces the purge gas after the pressure in the hermetic zone is reduced.

18. The soil treatment apparatus as set forth in claim 17,

wherein the organic halides are dioxins.

19. The soil treatment apparatus as set forth in claim 17,

wherein the purge gas contains at least one element selected from a

group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen.

20. The soil treatment apparatus as set forth in claim 13, further comprising:

halogen trapping means having a metal for forming chemical compounds with halogen contained in gases produced by the heating of the soil or an adsorbent for adsorbing the halogen in the produced gases.

21. The soil treatment apparatus as set forth in claim 13, further comprising:

reforming means for reforming gases produced by the heating of the soil at a first temperature at which dioxins are decomposed; and

cooling means for cooling the produced gases to a second temperature so that an increase in the concentration of dioxins in the gases is supressed.

22. A treatment method,

wherein an object to be treated containing organic halides is thermally decomposed under reduced pressure.

23. A treatment apparatus for treating an object to be treated containing organic halides or being capable of generating organic halides by heating, comprising:

means for heating the object;

a hermetic zone;

means for introducing the heated residue to the hermetic zone;

means for purging the hermetic zone by a purge gas which is substantially organic halide-free (which is short of organic halides); and

means for cooling the heated residue.

24. The soil treatment apparatus as set forth in claim 23,

wherein the heating means is a combustion furnace for combusting the object.

25. The soil treatment apparatus as set forth in claim 23,

wherein the heating means is a thermal decomposition furnace for thermally decomposing the object.

26. The soil treatment apparatus as set forth in claim 23,

wherein the heating means is a reduced pressure thermal decomposition furnace for thermally decomposing the object to be treated under reduced pressure.

27. The soil treatment apparatus as set forth in claim 23,

wherein the purging means introduces the purge gas after the pressure in the hermetic zone is reduced.

28. The soil treatment apparatus as set forth in claim 23,

wherein the organic halides are dioxins.

29. The soil treatment apparatus as set forth in claim 27,

wherein the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen.

30. The soil treatment apparatus as set forth in claim 23, further comprising:

halogen trapping means in which metal for forming compounds with halogen contained in gases produced by the heating of the object or an adsorbent for adsorbing the halogen in the produced gases is placed.

31. The soil treatment apparatus as set forth in claim 23, further comprising:

reforming means for reforming gases produced by the heating of the

object at a first temperature at which dioxins are decomposed; and

cooling means for cooling the produced gases to a second temperature so that an increase in the concentration of dioxins in the gases is supressed.

32. A treatment method,

wherein an object to be treated is passed through a furnace allowing the control of thermal decomposition temperature or through a plurality of reduced pressure furnaces different in thermal decomposition temperature when being subjected to thermal decomposition treatment while the pressure is being reduced from normal pressure.

33. A treatment method,

wherein a furnace allowing the control of thermal decomposition temperature at which an object to be treated is subjected to thermal decomposition treatment is provided, the pressure in the furnace is changed from normal pressure to a predetermined degree of vacuum, and thus the degree of vacuum is allowed to be maintained.

34. A treatment apparatus,

wherein a normal pressure furnace and a plurality of reduced pressure furnaces each for subjecting an object to be treated to thermal decomposition treatment are continuously provided, and the thermal decomposition temperature in each of the furnaces is set so as to increase with progress to a later stage.

35. The treatment apparatus as set forth in claim 34, further comprising:

halogen trapping means placed to connect with the reduced pressure furnaces and holding metal for forming compounds with halogen contained in gases produced by the thermal decomposition of the object to be treated or an adsorbent for adsorbing the halogen in the produced gases therein.

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36. A treatment method,

wherein a heated residue containing residual dioxins generated from waste disposal facilities, factories, and the like is treated while being heated with a reduction in pressure.